REMARKS

Reconsideration of the above-identified patent application is respectfully requested.

Claims 1-52 are pending in this application. Claims 1-18, 20-29, and 31-52 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0072956 A1 to Willems et al. (Willems) in view of "CALS 2 Technical Goat" (1997) published by Swedish Defense Material Administration (SDMA) in further view of "New Models to Speed the Development of Electronics Components" (1999) published by Preamp Consortium (Joint Venture) (PCJV hereinafter). Claims 1-12, 14, 15, 18-43, and 48-52 have been amended. Claims 13, 16, and 44-47 have been cancelled.

Independent Claim 1

The Examiner rejected independent claim 1 as being unpatentable over Willems in view of SDMA and further in view of PCJV. Claim 1 has been amended to recite "transmitting a user interface that requests entry of circuit board design data." The Examiner acknowledges that Willems fails to disclose "transmitting a user interface," but asserts that SDMA "discloses a scheme of sharing and exchange manufacturing data (e.g., manufacturing cost data and/or manufacturing capability data), which allows multiple users to access all parts of necessary information set in real time (sharing) or transfer it from a remote location (e.g., a server machine) to their own location or vice versa (exchange)." (Office Action dated July 27, 2006, page 3, lines 16-20). However, SDMA fails to disclose "transmitting a user interface that requests entry of circuit board design data" as recited in amended claim 1. This is because SDMA is not concerned with the designing of circuit boards. Rather, SDMA is directed to continuous acquisition and life-cycle support (CALS) of weapon systems and equipment (see. e.g., page 23, lines 6-13).

In addition, claim 1 has been amended to recite "retrieving circuit board manufacturing cost data in response to and associated with the user-supplied circuit board design data from a manufacturing cost database." Neither Willems, SDMA, nor PCJV disclose such an

element. The Examiner asserts that Willems teaches retrieving circuit board manufacturing cost data from a manufacturing cost database. (Office Action dated July 27, 2006, page 3, lines 5-7). However, Willems does not teach that such cost data is retrieved from the database in response to user-supplied circuit board design data. Rather, Willems discloses that "[t]he optimal configuration of the supply chain will choose one option per stage **such that the costs of the resulting supply chain are minimized.**" (Paragraph [0081], lines 14-16, emphasis added). That is, Willems discloses a method wherein an option is selected for each stage based on whether such option minimizes the overall cost. Willems does not disclose that such option may be selected based on other criteria, such as design data.

It should be appreciated that Willems is not directed to systems and methods for designing circuit boards. Rather, Willems is directed to a cost minimization algorithm for an assembly supply chain for the manufacture of a final product. For example, Willems discloses that "[w]here the production system is a supply chain, the invention provides a decision support tool that product mangers can use during the product development process where the products design has been fixed, but the vendors, manufacturing technologies, and shipment option have not yet been determined." (Paragraph [0080], lines 1-6). As such, Willems is not concerned with receiving circuit board design data and determining a cost associated with such design data. As such, for at least the reasons provided above, amended claim 1 is believed to be in condition for allowance.

Independent Claim 20

The Examiner also rejected independent claim 20 as being unpatentable over Willems in view of SDMA and further in view of PCJV. Claim 20 has been amended to recite "transmitting a user interface that requests entry of circuit board design data." For all the reasons provided above in regard to claim 1, neither Willems, SDMA, nor PCJV discloses such an element.

Claim 20 has also been amended to recite "determining whether the user-supplied circuit board design data exceeds the manufacturing capability of a circuit board manufacturer based on a comparison of the user-supplied circuit board design data and the circuit board manufacturing capability data" and "updating the user interface if user-supplied circuit board design data exceeds

the manufacturing capability of a circuit board manufacturer." Again, none of the cited references disclose such a step. The Examiner acknowledges that "Willems et al. and SDMA does not explicitly disclose retrieving circuit board manufacturing capability data from a manufacturing capability database." (Office Action dated July 27, 2006, page 4, lines 15-16). The Examiner relies on PCJV for overcoming this deficiency of Willems and SDMA. However, PCJV is directed solely to the sharing of manufacturing capabilities of a particular plant. PCJV does not disclose that such capabilities are compared to a circuit board design data to determine if the particular plant can manufacture a circuit board defined by the circuit board design data. As such, for at least the reasons provided above, amended claim 20 is believed to be in condition for allowance.

Independent Claim 31

The Examiner also rejected independent claim 31 as being unpatentable over Willems in view of SDMA and further in view of PCJV. Claim 31 has been amended to recite "transmitting a user interface that requests entry of circuit board design data." For all the reasons provided above in regard to claim 1, neither Willems, SDMA, nor PCJV discloses such an element.

Claim 31 has also be amended to recite "determining a number of work centers of a circuit board manufacturing process for manufacturing the circuit board defined by the user-supplied circuit board design data", "determining a per-circuit-board setup cost value and a per-circuit-board run cost value for each work center", "determining a per-circuit-board cost using the per-circuit-board setup cost value and the per-circuit-board run cost value for each work center", and "displaying the per-circuit-board cost on the user interface." Neither Willems, SDMA, nor PCJV discloses such elements. The Examiner argues that "Willems et al. teach that a supply chain (i.e., work center) is selected based on its product's unit manufacturing cost (UMC), which is defined as the per unit cost (i.e., per-circuit board manufacturing cost value) of a completed finished good item (i.e., circuit board) . . . overhead costs (i.e., setup cost value) . . . process engineering costs & processing cots (i.e., run cost value)." (Office Action dated July 27,

2006, page 6, lines 9-13). However, Willems explicitly states that "[a]s described herein, UMC will refer to just the direct portion of the product's cost." (Paragraph [0009], lines 19-20). As such, the unit manufacturing cost (UMC) computed in Willems does not include any "allocated overhead" costs as asserted by the Examiner. Rather the unit manufacturing cost computed in Willems includes only direct costs. As such, Willems fails to discloses, at least, "determining a per-circuit-board setup cost."

Claim 31 has further been amended to recite "determining whether the user-supplied circuit board design data exceeds the manufacturing capability of a circuit board manufacturer based on a comparison of the user-supplied circuit board design data and the circuit board manufacturing capability data" and "notifying a user of the user interface if the user-supplied circuit board design data exceeds the manufacturing capability of a circuit board manufacturer". For the reasons provided above in regard to claim 20, none of the cited references teach such elements. As such, for at least the reasons provided above, amended claim 31 is believed to be in condition for allowance.

Independent Claim 50

The Examiner also rejected independent claim 50 as being unpatentable over Willems in view of SDMA and further in view of PCJV. Claim 50 has been amended to include elements similar to claim 31. Specifically, claim 50 has been amended to recite that the instructions cause the processor to "transmit a user interface that requests entry of circuit board design data." For all the reasons provided above in regard to claim 1, neither Willems, SDMA, nor PCJV discloses such an element.

Claim 50 has also been amended to recite that the instructions cause the processor to "determine whether the circuit board design data exceeds the manufacturing capability of a circuit board manufacturer based on a comparison of the circuit board design data and the circuit board manufacturing capability data" and "notify the user if the circuit board design data exceeds the

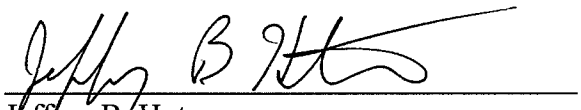
manufacturing capability of a circuit board manufacturer." For the reasons provided above in regard to claim 31, Willems, SDMA, nor PCJV discloses such elements. As such, for at least the reasons provided above, amended claim 50 is believed to be in condition for allowance.

For at least the reasons provided above, amended independent claims 1, 20, 31, and 50 are believed to be in condition for allowance. Because claims 2-12, 14-15, 17-19 depend from claim 1, claims 21-30 depend from claim 20, claims 32-43, 48, and 49 depend from claim 31, and claims 51 and 52 depend from claim 50, these claims are also believed to be in condition for allowance. Therefore, claims 1-12, 14, 15, 17-43, and 48-52 are in condition for allowance, and such action is solicited.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees be charged, or any overpayment in fees be credited, to the Account of Barnes & Thornburg LLP, Deposit Account No. 10-0435 with reference to file 6890-74183.

Respectfully submitted,

BARNES & THORNBURG LLP



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